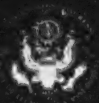
Effects of Information Technology on

Financial Services Systems

Summary



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Foreword

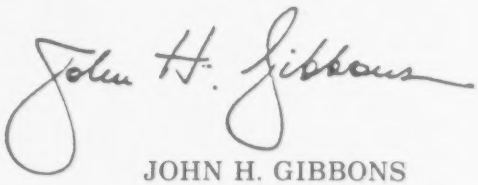
In 1982, the House Committee on Banking, Finance, and Urban Affairs; the House Committee on Energy and Commerce (expressing the special interest of its Subcommittee on Telecommunications, Consumer Protection, and Finance); and the Senate Committee on Banking, Housing, and Urban Affairs requested OTA to assess the impacts of information processing and telecommunication technologies on financial service systems. This pamphlet summarizes the report that resulted from that work.

The effects of technology on the internal operations, the structure and the types of services offered by the financial service industry have been profound. Technology has been and continues to be both a motivator and facilitator of change in the financial service industry. The structure of the industry has changed significantly in recent years as firms not traditionally viewed as financial service providers have taken advantage of opportunities created by technology to enter the market. New technology-based services have emerged. These changes are the result of the interaction of technology with other forces such as overall economic conditions, societal pressures, and the legal/regulatory environment in which the financial service industry operates.

Some changes in the financial service industry have not been consistent with the assumptions underlying the existing legal/regulatory structure whose foundations are half a century old. These changes have not taken the financial service industry beyond the purview of public policy, but they have altered the issues and the alternatives available to policymakers for dealing with them. Congress is faced with the task of establishing a strategy for dealing with complex issues relating to the structure of the financial service industry and its relationships with its customers coincident with a period of rapid change in that industry.

The technologies now and likely to be available to providers and users of financial services are described. The present structure of the financial service industry, its service offerings, its relationships with users of financial services, and observable trends are analyzed. Implications of possible future trends for industry structure, markets for financial services, and relationships between the industry and the legal/regulatory environment are explored.

In performing this assessment OTA relied heavily on published materials and on other information provided by a variety of persons and organizations. We are grateful for this support and assistance. Two workshops, one dealing with technology and industry trends, and the other with consumer issues, provided much valuable information. Members of the advisory panel were particularly helpful with their contributions. However, the results presented are the sole responsibility of OTA and do not necessarily represent the views of the members of the advisory panel or any of the others who have contributed.



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OTA appreciates the valuable assistance and thoughtful comments provided by advisory panel members at many points during the assessment. OTA, however, accepts sole responsibility for the views expressed in this report.

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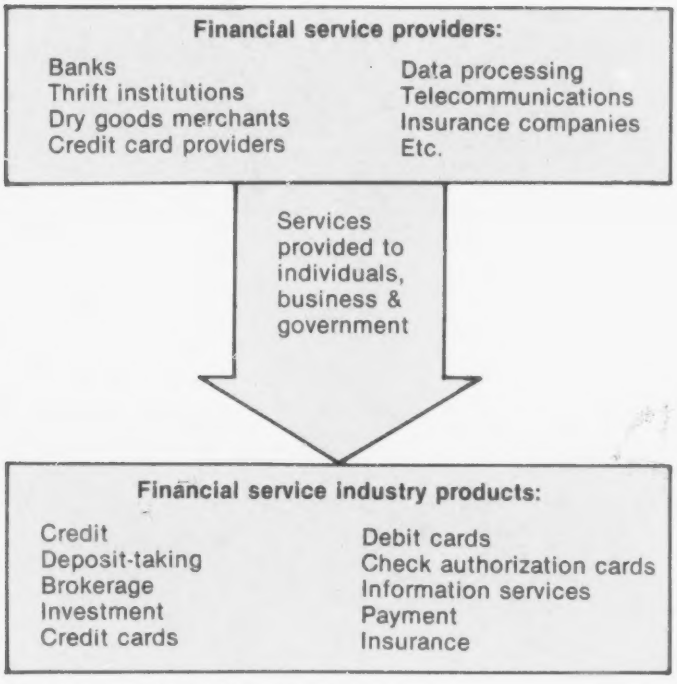
Effects of Information Technology on Financial Services Systems

This report focuses on the relationship between technology and change, both past and future, in the financial service industry. The roles of technology as both a motivator and a facilitator of change are analyzed. Other agents of change are considered only to the extent that they help define the market for new technology or its impact.

The financial service industry (see fig. 1) is markedly different from what it was at the end of the 1970's, and the rate of change will only slow slightly during the remainder of the 1980's. Advancing information and communication technologies are key factors that have changed the nature of financial services: the ways in which they are

Figure 1.—Organizations Comprising the Financial Service Industry and Their Products



SOURCE: Office of Technology Assessment.

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created, delivered, priced, received, and used. Relationships between and among users and providers of financial services are changing.

The existing legal/regulatory structure has roots that extend back 50 years; changes in the financial service industry have challenged some of its premises. Since the mid-1970's, Congress has devoted considerable attention to the financial service industry and has enacted several major pieces of legislation. Many of the regulations governing the industry are being relaxed. However, continued congressional attention is needed because not all of the salient issues have been resolved.

In the last few years, banks legally able to operate outside traditional banking regulation have appeared; retailers of food and general merchandise have emerged as major suppliers of financial services; changes in law and regulation have enabled banks, savings and loan associations, and credit unions to broaden the mix of services they offer and enter markets previously closed to them. At the same time, firms whose financial service offerings are virtually unregulated compete directly with traditional, regulated providers.

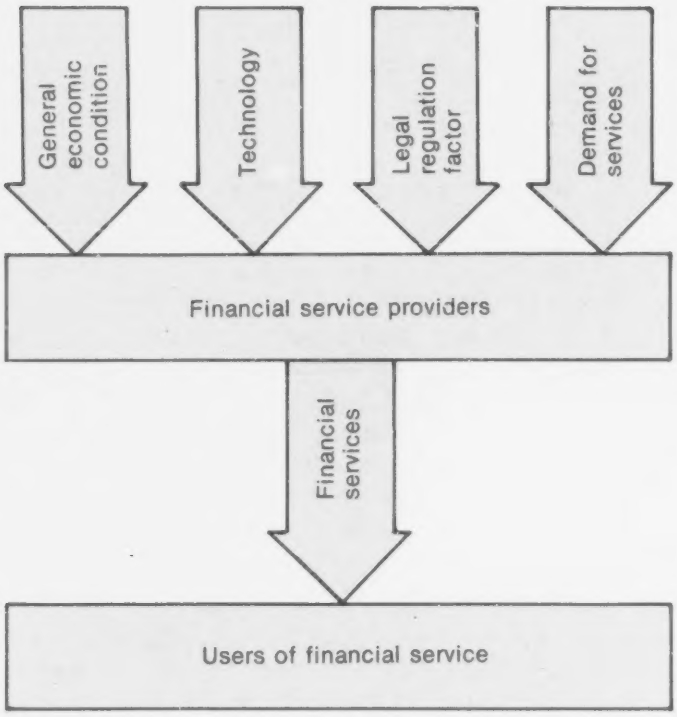
Information processing and communication technologies are being used to enhance existing services, to implement new ones, and to make them available in new ways. Money market mutual funds, operated by investment companies and securities broker/dealers, permit shareholders to redeem shares by writing the equivalent of a check. Banks, depending heavily on information processing and communication technologies, are beginning to offer securities through discount brokerage subsidiaries. Banks, credit unions, and savings and loan associations join networks of automated teller machines that enable account holders to obtain cash 24 hours a day from machines that are available nationwide. Both securities dealers and banks have developed systems that allow account holders with personal computers to transfer funds between accounts, pay bills, and order the purchase and sale of securities.

Observers consistently and correctly point to technology as a key factor responsible for the rapidity and magnitude of change in the financial service industry. However, other factors such as the legal/regulatory environment, general economic conditions, and the demands of users have also had significant impact on the industry (see fig. 2).

Major Findings

The changes that have taken place in the financial service industry affect a number of areas including industry structure, the legal/ regulatory environment, financial service delivery systems, consumer interests, and the safety and soundness of the industry. Major findings in each of these areas are summarized below.

Figure 2.—Factors Affecting Financial Service Providers



SOURCE: Office of Technology Assessment.

Industry Structure

- Rapid and dramatic change in the financial service industry will not persist indefinitely. There will be a period of stabilization, probably over the coming decade, after which the financial service industry is likely to return to a more orderly evolutionary pattern.
- Firms are in the process of broadening the scope of their service offerings, a trend that will continue during the coming decade. The future mix of financial services offered by each class of provider will be much different from what it is now. Some will offer the full range of financial service including taking deposits, extending credit, underwriting insurance and securities offerings, and securities brokerage. Others will target narrowly defined markets such as serving the needs of medical and legal professionals. Data processing and communication services are likely to be increasingly important offerings by financial service firms.
- So long as firms can continue to enter the financial service industry with ease, the likelihood of the industry becoming dominated by a small number of providers is minimal.
- Because of the affordability of information processing and telecommunication services for firms of all sizes, access to technologies does

not constitute a barrier to entry into financial service markets. Technology may actually facilitate entry. A small firm, by obtaining communication and processing services from others can enter a market and compete with firms many times its size. On the other hand, if the existing accessibility of processing services does not continue, entry into the financial service industry by small firms may be foreclosed.

- The ability to move information quickly, reliably, and accurately is essential to success for both providers and users of financial services. Organizations controlling extensive distribution and/or communication systems are entering and will continue to enter markets as providers of financial services.
- By facilitating the flow of information nationwide, information processing and telecommunication technologies have contributed to the development of national markets for financial services. Investors and users of capital benefit to the extent that their offers receive broader exposure than they would in a local or regional market. On the other hand, market conditions are not uniform nationwide; and opportunities may be more favorable in some areas than in others. Thus, there is a possibility that the existence of national capital markets will draw funds from some regions and cause their needs to remain unfulfilled.

Legal/Regulatory Environment

- The legal/regulatory structure now governing the financial service industry dates from the 1930's. Technological, social, and economic factors are causing considerable change in the types of services offered, the types of firms offering them, and the demands of the consumer. In light of the changes that have taken place, this may be the time to reconsider the overall legal/regulatory structure governing the financial service industry.
- Policies that have assumed a specific industry structure or service mix seem to be particularly vulnerable to unanticipated effects when new technologies are introduced. For example, the assumption that only banks will take deposits was undermined by the application of technology by firms other than banks to support offerings such as the money market account.
- Some recent changes in State banking law modify the way in which Federal law affects financial service institutions. In the past, States have generally supported policies for the financial service industry consistent with those of the Federal Government. This is no longer always true. Some banking organizations have established subsidiaries in States that have adopted policies favorable to them and use information processing and telecommunications to distribute services nationwide.

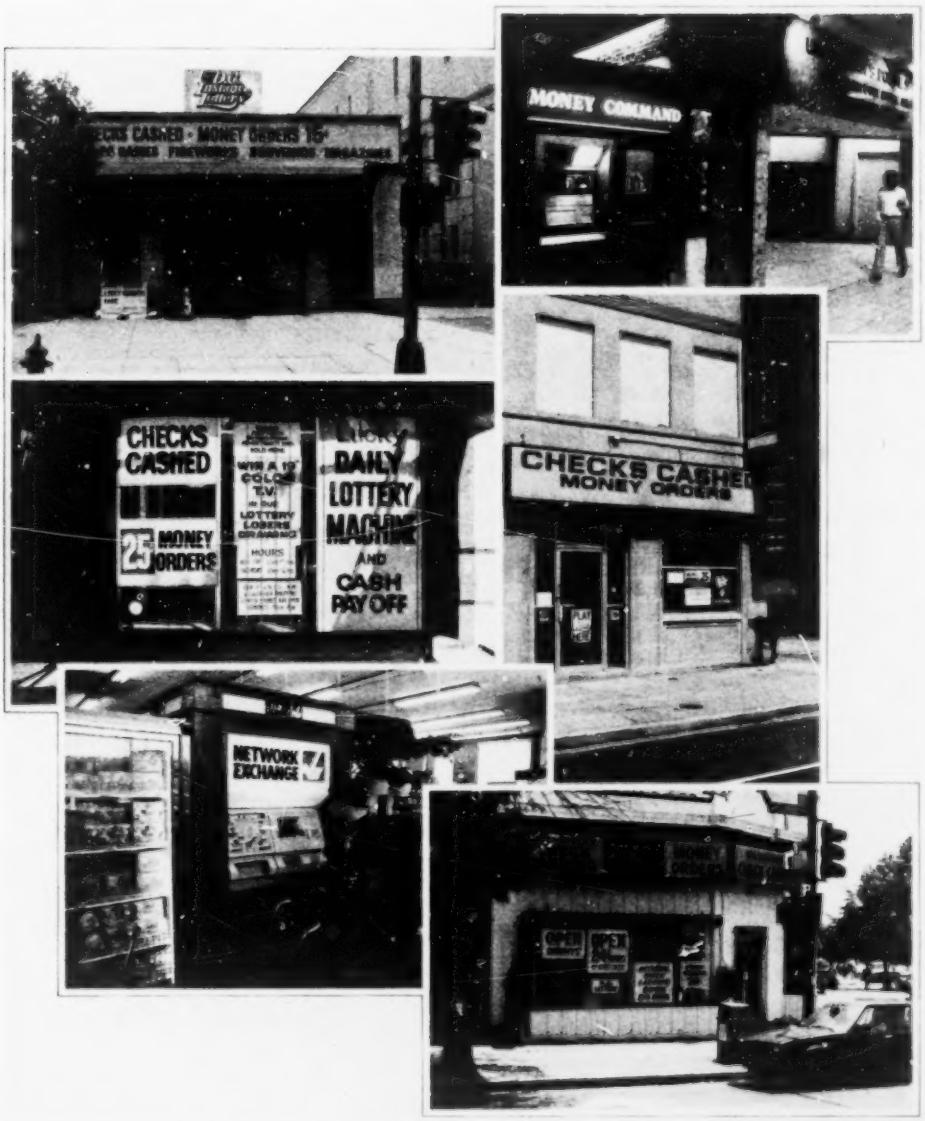


Photo credit: Steven Rothenberg

Consumers can obtain cash through a variety of service delivery systems

- Survey data show that consumers are concerned with the effects of changes in the financial service industry on their ability to preserve personal privacy. Privacy issues, on the other hand, are not presently prominent on the congressional agenda. If incidents of compromised privacy are widely reported in the future, it may again be a focus of public policy debate.
- In many cases, a financial institution has no document bearing an authorizing signature that can be reviewed before an electronically issued order is executed. Errors in electronic financial systems may

only become visible on the periodic account statement. Therefore, customers of electronically delivered financial services bear greater responsibility for detecting errors and initiating the procedures for correcting them than do customers using paper-based systems.

Safety and Soundness of the Industry

- Increasing use of information processing and communication technologies requires that both providers and users take precautions to ensure the integrity and security of financial service delivery systems. Although the use of technology may improve some aspects of the security and integrity of financial services systems, new vulnerabilities may be introduced. Computer-based authorization systems reduce the opportunity for fraudulent use of stolen credit cards. However, if an account number is compromised without the knowledge of the legitimate owner, its fraudulent use may not be discovered until a statement is received. Thus, the perpetrator may have a significant period after obtaining an account number to commit fraud with relatively little chance of detection.
- The existing regulatory structure promotes safety and soundness of the financial service industry by providing Federal insurance for funds deposited in many banks, savings and loan associations, and credit unions. Funds entrusted to other institutions receive little, if any, of this Federal protection. The changes in the financial service industry have led to significant movement of funds from accounts in insured, closely supervised institutions to alternative investments that offer higher return. Yet, based on experience to date, there is no evidence that the fundamental safety and soundness of the industry have been appreciably compromised by the movement of funds from federally insured accounts.

Financial Services in the Future

Forecasts of the financial service industry prepared over the last 10 to 15 years have not been particularly accurate. Many of the earlier efforts foresaw the virtual elimination of the check and significant decrease in requirements for currency and coin during the last quarter of this century. Some saw particular promise in specific technology-based services (e.g., super-check, an instrument that would use one order to direct payment to multiple creditors, and telephone bill payment) that has not yet been realized.

Experts continue to prepare forecasts for the financial service industry. Firms continue to develop and bring to market what they believe to be promising services. Some are labeled experimental while others are designated as operational systems. Although forecasters appear to have developed more realistic pictures of future markets for financial services than were available in the past, much uncertainty remains.

Experience to date will not support an attempt to develop a detailed picture of the financial service industry of the future, but some general trends (e.g., ever-increasing use of advanced technology to deliver financial services) are clearer now than they have been. For example, there is little doubt among industry observers that customers will electronically order the immediate transfer of funds from their accounts to those of merchants at the time purchases are made. However, the specifics of the systems that will be used to implement this service remain open to question. OTA's analysis of general trends being followed by the financial service industry represents many points of view now held by knowledgeable observers.

Influence of Technology

The financial service industry of the future will be quite different. The established trend of increasingly heavy dependence on technology for delivering services will continue. Services will be provided by a wide variety of institutions. Barring a major restructuring of the wholesale side of the financial service industry, small financial service firms will be able to obtain access to the technologies they will require to remain viable. Although relatively few firms are likely to provide service nationwide, it is likely that the existence of a large number of small, specialized financial service organizations will prevent the few from dominating the market.

Communication will be key to delivering financial services in the future. Networks growing out of those used to connect shared systems of automated teller machines are likely to provide the basis of systems permitting electronic initiation of fund transfers from the merchant's counter. Systems providing access to funds from virtually any place in the Nation regardless of where they are deposited are now being developed and are likely to be in use in the next few years. Advanced communication technologies including satellite relays, video cable, fiber optics and cellular radio will find wide application in the financial service industry.

Decreasing computer costs will create the opportunity for large numbers of individual consumers and managers of small businesess to take advantage of technology in using financial services. Large computers will be used to support the data bases and the communication processing needed to operate the large, interactive financial service delivery systems of the future. Computers that accept voice inputs and recognize fingerprints may become cost effective for financial service delivery systems by the turn of the century. Small, inexpensive personal computers in both home and office will make it possible for customers to interact with a multiplicity of financial service offerors. Computer processor and memory chips imbedded in plastic cards may find widespread use in the financial service industry.

Financial Service Providers

Banks, savings and loan associations, and credit unions probably will concentrate on transaction processing and place less emphasis on gathering deposits and providing financing. Emphasis will be placed on computer and telecommunication-based systems for delivering financial services. Included in the services offered will be data processing, securities brokerage, and, possibly, insurance. In the future, branches will be dominated by a variety of machines the consumer will use to directly interact with financial service systems. Institutional personnel will serve more of an advisory role and handle customer transactions, such as payments and withdrawals, only in exceptional cases.

Securities broker/dealers, long providers of transaction services, will compete directly with banks, savings and loan associations, and credit unions in many areas. Today they already offer a variety of services such as money market funds that are designed to give the customer ease of access to financial assets. This trend will continue, and the future is likely to see higher levels of activity by securities broker/dealers in processing an increasingly broad variety of transactions. Retailers of food and general merchandise and possibly other types of organizations will be attracted to the financial service industry. They will see opportunities to profitably apply technological resources which are in hand or within reach to offer transaction processing services.

Firms that have established information processing and telecommunication facilities are likely to be particularly active in the financial service industry. New entrants into the industry will have roots in such varied areas as retail food and dry goods merchandising, petroleum production and distribution, and communications. Traditional providers of financial services are likely to continue the present trend toward diversifying their offerings, often entering into areas that have been closed to them in the past.

Users of Financial Services

Financial services will be delivered to the customer at a convenient location with little need for clients to visit the offices of a financial service provider. The present tendency of corporate financial officers to use terminals in their offices to manage funds will extend to smaller businesses. Although the trend is not yet clearly established, individual consumers are likely to use home terminals to interact with financial service delivery systems.

Consumer financial service packages are likely to be offered in conjunction with other information-based consumer services such as home shopping, investment advisories, recreational services such as computer games, travel reservations, and the purchase of tickets to sport-

Photo credit: American Express Co.

Automated traveler's check dispenser

ing and theatrical events. Financial service institutions may develop and operate the network used to distribute these services or they may participate in networks assembled and operated by others.

Consumers may use terminals to order banks to pay bills or to purchase securities. They may enjoy more flexibility in services used. For example, rather than carrying a fixed amount of insurance, a terminal could be used to vary it in response to changing needs (e.g., increasing coverage for theft while jewelry is kept at home rather than in the bank vault). Orders to buy or sell stocks and bonds could be entered from home and executed on an automated exchange. Consumers may use home information systems to analyze their financial positions and to help make decisions on investment opportunities. Using these and other capabilities will give the consumer greater personal control over his assets.

Consumers may find that they need an account with a financial institution to have access to a variety of services. Some employers may

require direct deposit of payroll checks. Alternatively, employers may offer employees the option of writing checks against salary held in a company account in return for being paid daily. Consumers may need an account to be able to use shop at home and travel reservation services.

Although technical differences will remain, operational distinctions between services offered by various classes of providers will diminish. It will be more difficult for users to differentiate between them. For example, though a money market fund offered by a securities dealer is quite different from a demand deposit offered by a bank, both meet similar needs for consumers as accounts from which funds can easily be withdrawn.

Congressional Policy Issues

The results of changes already observed in the financial service industry and those possible in the future are not consistent with some of the key assumptions underlying the present Federal policy structure. Growing direct competition between banking and the securities industry, the appearance of new classes of financial service providers, and the changes following from rapid increase in reliance on advanced technologies to deliver financial services exemplify shifts that have taken place. Therefore, Congress is faced with significant questions about the relevance and utility of present public policy. In addressing these questions, Congress will find it necessary to resolve conflicts between the need to reconcile conflicting interests, on the one hand, and to create a climate conducive to the development of new financial services and delivery systems beneficial to both users and providers on the other.

General Policy Considerations

Restructuring the Policy Framework

- **What are the alternative approaches that could be used if a review and restructuring of laws and regulations related to financial services were undertaken?**

The financial service industry has changed since the 1930's when most of its present policy structure was developed. Rapid change, encouraged by technology and other market forces, is expected to abate in the 1980's or 1990's. Although Congress has commissioned comprehensive reviews of the financial service industry and the legal/regulatory structure governing it and has addressed some specific changes in the industry, legislation revisiting the fundamental premises of existing policy has not been enacted.

One alternative is continuation of the present approach of incrementally adjusting the policy framework as the financial service industry

continues to evolve. Some of the steps taken using this approach are in anticipation of future events; others are taken in response to events in the marketplace. Alternatively, the entire legal and regulatory structure governing the financial service industry could be reviewed and recast in a form deemed suitable in light of expectations for the future.

Implementation of Policy

- **What are the mechanisms available to Congress for implementing policy pertaining to the financial service industry?**

Historically, Congress has implemented policy for the financial service industry through one of the most pervasive regulatory structures applied to American industry. Public policy has focused on ensuring the safety and soundness of financial institutions because of their unique role in society. To this end, the assets of the clients of many financial service institutions, particularly banks, have been protected through a combination of insurance and examination programs. However, new entrants into the financial service industry, many of whom are subject to neither Federal nor State regulation, now compete with regulated traditional financial service firms. Because the nature of competition in the financial service industry has changed, traditional protections implemented through existing regulation have lost some of their effectiveness.

Regulations applicable to the financial service industry have been eased in recent years. Controls on interest rates have been relaxed and bank holding companies have become freer to broaden the lines of services (e.g., data processing) they offer.

As Congress continues to develop and refine policy for the financial service industry, one of the tools at its disposal is its ability to vary the degree of regulation applicable to providers of various financial services. Alternatively, it may modify the outcomes of market forces to mitigate adverse affects on specific groups. For example, if the market were to compel individuals to have at least one account with a financial service provider, Congress might choose to provide a means for ensuring that all are able to obtain a satisfactory package of services.

Structural Issues

Consolidation in the Financial Service Industry

- **What levels of concentration in the financial service industry are consistent with the goal of preserving competition among providers of financial service?**

There are 40,000 banks, savings and loan associations, and credit unions in the United States. Thousands of other organizations including securities broker/dealers, consumer finance companies, merchants,

and insurance companies also provide financial service. A goal of Federal financial services policy has been to preserve competition and prevent concentration in that industry.

Technology-based financial service systems are changing the nature of competition within the industry. Financial institutions are entering new markets and competing both among themselves, and with other industries, more deliberately and directly than ever before. New entrants are providing services in areas that, in the past, have been reserved to traditional financial service institutions. In the face of technological change and competition, mergers involving both traditional financial service providers and new entrants have taken place. It is possible that these changes will result in a net reduction in the number of providers and will reduce competition in the financial service industry. Some observers are concerned that this could lead to excessive concentration of economic power.

Congress may find that in light of other trends affecting the financial service industry, the trend toward greater consolidation in the industry is acceptable. Alternatively, it may use one of several available strategies to limit consolidation. For example, specific criteria for controlling entry to and exit from the industry could be established.

Restrictions on Interstate Banking

- **What modifications, if any, could be instituted regarding restrictions on interstate banking?**

While Federal law limits interstate branching by institutions allowed to take deposits, it does not prevent interstate activities by these organizations. Banks have established interstate networks of offices that market services other than deposit-taking, such as lending. Some financial institutions have used technology-based delivery systems to circumvent these restrictions and some States have passed laws that permit regional interstate banking. Federal law now permits acquisition of one financial institution by another in a different State under specified circumstances. Unregulated competitors of depository institutions are able to establish offices without regard to geographic boundaries and, hence, may offer services nationwide.

Available options for Congress include retention of present policies with respect to interstate operations of financial service organizations, reducing or removing restrictions completely, or making restrictions more inclusive than they are at present. For example, all institutions that offer deposit-taking services could be made subject to restrictions on interstate operations. Loopholes in existing law and regulation could be closed. Restrictions on interstate deposit-taking through automated teller networks could be relaxed.

Limitations on interstate banking stemmed, in part, from concerns that some banks serving regional or national markets could achieve an unwarranted degree of economic power and that local needs for capital would remain unmet as funds were concentrated in major money centers. An alternative for addressing the latter would be to strengthen requirements that institutions taking deposits meet needs for credit of the area from which deposits are gathered before funds are made available to regional or national markets.

Market Segmentation

- **How might law and regulation be used to focus the attention of various classes of financial service providers on specific market areas?**

The existing policy structure more or less compartmentalizes the financial service industry by function. Banks may take deposits, insurance companies may underwrite insurance. Insurance companies may not take deposits and banks may not underwrite insurance. Nevertheless, new entrants to financial service markets have been able to offer services in direct competition with those for whom, in the past, specific market segments had been reserved. Operators of investment funds, for example, offer services that share many features of deposit accounts offered by banks. In some instances, the traditional providers have been unable to respond fully to their new competitors because of the regulatory structure within which they must operate.

Congress may choose to resolve this issue by permitting banks and other institutions to offer financial services that range over a broad spectrum, enabling them to be more responsive to competitive offerings of others. Bank powers could be broadened to include the underwriting of securities and insurance, for example. Alternatively, powers to affect mergers between financial service providers and firms from outside the financial service industry could be modified. To an extent, this would represent a continuation of current practice in which the Federal Home Loan Bank Board has permitted mergers across State lines between savings and loan associations. Under the provisions of the Garn-St Germain Act of 1982, banks have been permitted to acquire distressed, out-of-State savings and loan associations.

A third alternative would see the implementation of policy encouraging financial service providers to engage in activities with clear social benefits. Examples would be incentives encouraging all providers of financial services to finance home ownership and educational programs.

Relationship to Telecommunication Policy

- **How will further deregulation of telecommunications affect the financial service industry?**

Financial service providers depend heavily on telecommunications to deliver services to their clients; and, therefore, they are sensitive to changes in that industry. Many have built and operate sophisticated private telecommunication networks. Without adequate telecommunication capabilities, the financial service industry cannot meet the needs of its clients. Changes in telecommunication costs have a direct and immediate effect on both providers and users of financial service.

The telecommunications industry is undergoing fundamental changes that are altering the nature of the services available to its customers and the prices that will be charged. As financial service delivery systems designed for direct interaction with customers become more commonplace, relationships between the product mix, operating characteristics and structure of the telecommunications industry, and the operations of the financial service industry will become closer.

The formulation of telecommunication policy is extremely complex and beyond the scope of this report. However, Congress should remain aware that telecommunication policy directly influences the economics of financial service delivery systems and, hence, the mix of financial services that will be offered.

Competition Between Regulated and Unregulated Service Providers

- **What steps could be taken to realign the legal/regulatory structure to make it conform more closely to the changing structure of the financial service industry?**

Many financial services offered by unregulated firms are comparable to those marketed by regulated institutions. For example, money market mutual funds marketed by securities dealers have attributes in common with some of the various checking accounts offered by banks. Retailers of food and general merchandise are building networks of automated teller machines and networks to communicate payment data in direct competition with those built and operated by financial institutions. While the user may not perceive any real difference between the offerings of various financial service providers, in some circumstances the existing legal/regulatory structure does not cover the activities of non-traditional providers. Users of these unregulated services often do not receive the same protections provided with services offered by regulated institutions.

Photo credit: New York Stock Exchange

The trading floor of the New York Stock Exchange: 1984

Congressional options for addressing this question range over a broad spectrum. The present dual system of regulation by both the Federal Government and the States could be continued. Alternatively, Congress could follow the model for the insurance industry and defer to the States for all regulation of financial services. At the other extreme, Congress could preempt all State regulation of the financial service industry. Regardless of the level of the Federal presence, and in contrast with the present practice of distributing responsibility, all Federal regulation of financial services could be combined and assigned to a single agency. The focus of regulation could be shifted from the institutions providing service to the functions performed regardless of the nature of the organization performing them. For example, rather than regulating banks as a means of controlling deposit-taking, regulate all organizations that perform the deposit-taking function regardless of the other lines of commerce in which they may have interests.

Barriers to International Operations

- **The concerns of foreign governments regarding the protection of individual privacy could lead to the erection of barriers for American financial service firms doing business overseas. What steps could the United States take to address these concerns or circumvent the barriers?**

Foreign government implementation of personal privacy protection programs, some of which are more stringent than those of the United States, may restrict the international operations of American financial service providers. Some nations have suggested that they may limit the movement of personal data across their borders to and from others that do not meet their standards for privacy protection. The United States may find the operations of its financial service industry limited by privacy policies of foreign governments.

Congress, in considering this issue, may choose to continue the present course and to not expand the privacy protections now in place. Alternatively, it may adjust privacy law as it relates to financial services as a means of reducing potential barriers to American financial service providers other nations may raise.

Access to the Clearing Systems

- **What organizations could be granted access to the mechanisms for clearing checks, securities, and other payment instruments such as credit card drafts?**

Banks and savings and loan associations are the only institutions with direct access to the payments system. This may give them a competitive advantage over other offerors of checking account substitutes, credit cards, and debit cards. Some securities brokers offer accounts

from which funds may be drawn by either a paper draft or debit card and other organizations, such as the American Automobile Association which offers VISA, issue bank credit cards. However, offerors of payment instruments that are neither banks nor savings and loan associations, almost without exception, must obtain payment-processing services from an institution that has access to the payments mechanism.

In light of the technologies now available, some argue that other types of institutions should also be granted access to the payments mechanism. One major merchant is now permitted to enter transactions into one of the bank card networks without using the services of a financial institution. Conceivably, the future could see the development and operation of significant systems for transferring funds without the involvement of banks and other traditional providers of payment services.

The Federal Reserve System was established, in part, to assure smooth operation of the check-processing system. Congress may decide that the operability of the payment system can only be assured if it remains under control of the banks and savings and loan associations. On the other hand, Congress may choose to open access to the payment system to others, such as data processing service organizations, willing to meet specific criteria. Or, it may open the system to all who would join without establishing specific criteria for membership.

Risk Allocation Issues

Control of Interest Rates

- **What alternatives for regulating interest rates are available to Congress?**

Federal controls on the interest rates paid by federally insured institutions are being phased out. States impose limits on the interest rates that may be charged on some types of loans. In recent years, when market rates have exceeded both Federal and State limits, significant quantities of funds have moved from banks, credit unions, and savings and loan associations to alternative investment opportunities created by new entrants to the financial service industry. These new entrants have relied heavily on advanced telecommunication and information processing technologies to implement their offerings. Constrained interest rates effectively limited the supply of funds to some classes of invesments. In many cases, policymakers have reacted to these movements by changing the legal limits on interest rates paid and charged.

Congress may choose to ensure total decontrol of interest rates by preempting State usury laws. Alternatively, the same mechanism

could be used to establish uniform, regulated interest rates nationwide. Other alternatives include maintaining controls on interest rates paid on federally insured accounts and ceding to the States control of all interest rates paid within their boundaries.

Allocation of Risk

- **What are the alternatives for apportioning risk between financial institutions and their customers and clients?**

Deposit insurance protects holders of accounts in covered institutions from loss of assets up to the limits of the insurance. Although some noninsured accounts share many of the attributes of insured accounts, because the account holder is not protected from loss of principal, they often carry a higher level of risk for account holders. However, because Federal agencies that insure deposits have preferred to find merger partners for distressed institutions instead of closing them, deposit insurance has implicitly provided protection for stockholders and holders of large deposits as well as the owners of accounts with balances below the limits of insurance coverage. Some argue that managers of financial institutions take unjustified risks because they feel they are implicitly protected by deposit insurance. It has also been suggested that depositors and others with whom an institution deals do not review the condition of the institutions with which they conduct business as carefully as they might because of the presence of deposit insurance.

Deposit insurance has been key in the policy framework designed to sustain the safety and soundness of the financial service industry. Congress may choose to continue it in its present form where the same insurance rates apply to all covered institutions. Alternatively, the premiums charged insured institutions could be modified to reflect the level of risk the insurance program is required to underwrite. Further, deposit insurance could be extended to accounts not now covered.

Lifeline Financial Services

- **What is necessary to assure an adequate level of financial service to all segments of the population and to protect other basic consumer rights and interests?**

Individuals who so choose have been able to avoid dealings with providers of financial services. However, the ability of consumers to avoid dealings with the financial service industry is being limited by such factors as pressure from employers and government to accept payments by direct deposit and the increasing role of the credit card as an item of identification. In the future, it is likely that access to some minimal set of financial services will be essential for all citizens.

Congress, in approaching this issue, may find it necessary to define a minimal set of financial services needed by virtually the entire pop-

ulace. It may then wish to specify alternative institutional structures that could be used to deliver such a package of services including the possibility that all providers of transaction accounts be required to offer the "lifeline" package. Congress may wish to define the rights of consumers to payment services and the information regarding them that needs be provided to users. Consideration of a policy that would govern the timing of debits and credits to an account to ensure equitable treatment of consumers may be advisable.

Privacy

- **Some changes in the delivery of financial services increase the possibility that the privacy of citizens could be eroded or violated. How can Congress reduce that possibility?**

Systems that use information processing and telecommunication technologies for delivering financial services gather data more rapidly and make it more accessible than do paper-based systems. Information on the financial activity of individuals can be accumulated and used without their knowledge or consent. Existing law provides some protection from intrusion on financial data by the Federal Government, but virtually no protection from the use of this information by State and local governments or private parties and organizations. Increasing use of electronic systems for delivering financial services exacerbates potential threats to individual privacy.

One alternative open to Congress is to explicitly define the rights of citizens to privacy. Because users of financial services must, by the nature of the systems used to deliver them, surrender privacy to a degree, Congress may choose to require they be provided a statement disclosing the degree to which privacy is likely to be compromised. A program of monitoring and enforcing rights to privacy might be established.

Security and Integrity of Delivery Systems

- **Are additional actions needed to safeguard the integrity of national payment and transaction systems against risk of disruptions from systems failure, hostile attack, and natural disasters?**

System security and integrity have always been of paramount concern to the financial service industry. Both paper-based and electronic systems for delivering financial services are vulnerable to attack from the outside and to systemic failure. While electronic systems overcome some of the vulnerabilities inherent in paper-based systems, new problems are introduced. Continued operability of many major computer-based systems can only be assured through the availability of redundant automated systems. In these cases, some system failures can threaten the existence of a financial institution since manual processing is not possible in the event that a primary automated

system fails. For example, if a bank is unable to perform routine transaction processing because of a system failure, it may not be able to settle its accounts with other institutions on time and, as a result, may fail.

Although recognition of the problems of system security and integrity is becoming more widespread, its true magnitude is not known. Additional information is needed before reasonable public policy alternatives can be identified. Therefore, Congress may wish to either hold hearings or establish a national commission to assemble additional information prior to undertaking a specific legislative program. Possibly the Federal Emergency Management Agency could help meet this need for information.

Vulnerability of Financial Service Systems to Theft

- **What alternatives are available for controlling the risk of theft from or associated with financial service institutions?**

Theft of assets is a constant threat for financial service providers and their clients. New combinations of telecommunication and computer processing for delivering financial services provide new avenues for theft. As safeguards are put in place, new methods of perpetrating crime against financial service systems are found. Some of them, theft of data under some circumstances for example, are not clearly covered by existing law. Some financial service providers are hesitant to report incidents of theft involving technology-based systems in fear both of lessening the confidence of their customers and of revealing system vulnerabilities to potential predators.

In dealing with this issue, Congress may continue to rely on existing law and law enforcement capabilities. Because the issue is not well understood, Congress may wish to gather additional information regarding the problem and alternative solutions either before acting or following initial steps to deal with the most salient aspects of the issue. In the short term, it may modify the law to more clearly deal with the obvious problems (e.g., clarifying the treatment of those who steal data) that have accompanied the inclusion of advanced technologies in systems for delivering financial services. Additional resources and technological capabilities could be made available to law enforcement authorities. Penalties against both the perpetrators of crime and those that conceal it could be increased.

NOTE: Copies of the full report "Effects of Information Technology on Financial Services Systems" can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, GPO stock No. 052-003-00961-7.

Notes

Assessments in Progress as of September 1984

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